Application Number 10/599035
Response to the Office Action dated 01/07/2008



**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application.

**Listing of Claims:**

1. (Currently Amended) A method for producing a silicon carbide (SiC) single crystal, wherein a simple substance of silicon (Si) and carbon (C) are heated at 1000°C or lower, and are dissolved in an alkali metal flux, and are reacted to produce or grow the silicon carbide single crystal.

2. (Currently Amended) The producing method according to claim 1, wherein the silicon carbide single crystal is a 2H-SiC single crystal or a 3C-SiC single crystal.

3. (Original) The producing method according to claim 1, wherein the silicon carbide single crystal is produced or grown by cooling the alkali metal flux in which the silicon and the carbon are dissolved.

4. (Original) The producing method according to claim 3, wherein the silicon and the carbon are dissolved in the alkali metal flux by heating the silicon, the carbon, and the alkali metal, and the heated state is maintained for a specific length of time, and then the heating temperature is lowered to cool the alkali metal flux.

5. (Original) The producing method according to claim 1, wherein a temperature gradient is formed in the alkali metal flux, the silicon and the carbon are dissolved in a high-temperature region of the temperature gradient, and the silicon carbide single crystal is produced or grown in a low-temperature region of the temperature gradient.

6. (Original) The producing method according to claim 1, wherein the alkali metal is at least one selected from the group consisting of lithium (Li), sodium (Na), and potassium (K).

7. (Original) The producing method according to claim 1, wherein the alkali metal is lithium (Li).

8. (Original) The producing method according to claim 1, wherein the alkali metal flux further includes an alkaline earth metal.

9. (Original) The producing method according to claim 1, wherein the reaction is conducted in a reaction vessel, and the carbon is supplied from a material from which the reaction vessel is formed.

10. (Original) The producing method according to claim 9, wherein the reaction vessel is formed from a carbon-based material.

11. (Original) The producing method according to claim 10, wherein the carbon-based material is graphite.

12. (Original) The producing method according to claim 1, wherein a silicon carbide crystal is produced beforehand as a seed crystal, and the seed crystal is used as a nucleus to grow new silicon carbide single crystal.

13. (Original) The producing method according to claim 1, wherein the silicon carbide single crystal is produced or grown under a pressurized atmosphere.

14. (Original) The producing method according to claim 1, wherein the silicon carbide single crystal is produced or grown under an inert gas atmosphere.

15. (Original) The producing method according to claim 14, wherein the inert gas is at least one of argon (Ar) gas and a hydrocarbon gas.

16. (Original) The producing method according to claim 15, wherein the hydrocarbon gas is at least one of methane gas and propane gas.

17. (Original) The producing method according to claim 1, wherein the alkali metal flux further includes an impurity as dopant.

18. (Canceled)

19. (Canceled)

20. (New) The producing method according to claim 1, wherein the silicon carbide single crystal is a 2H-SiC single crystal.